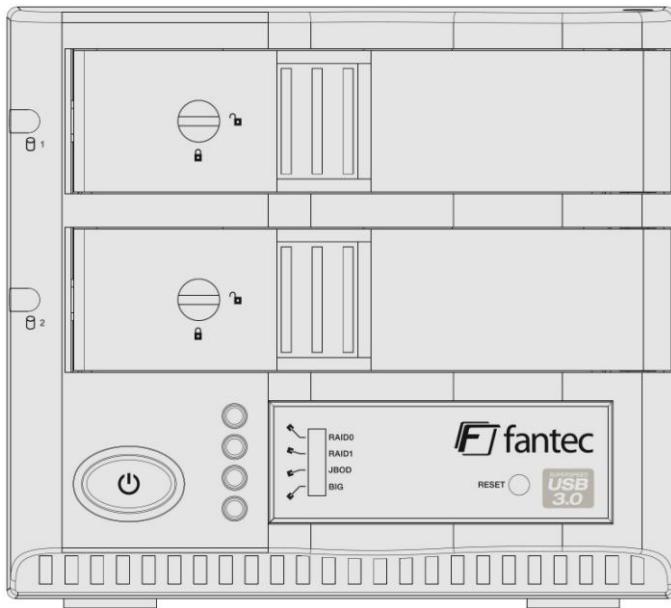


FANTEC

MR-35DU3e



USER MANUAL

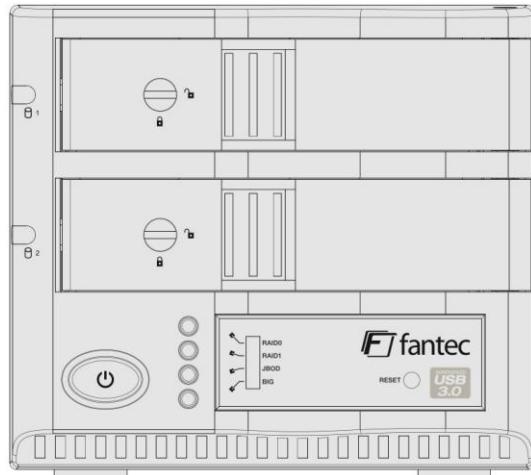
Menu

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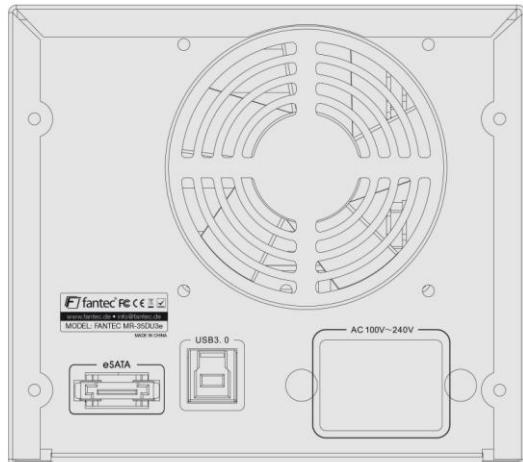
1. Product Introduction

SATA 2x HDD to USB 3.0 or eSATA interface.

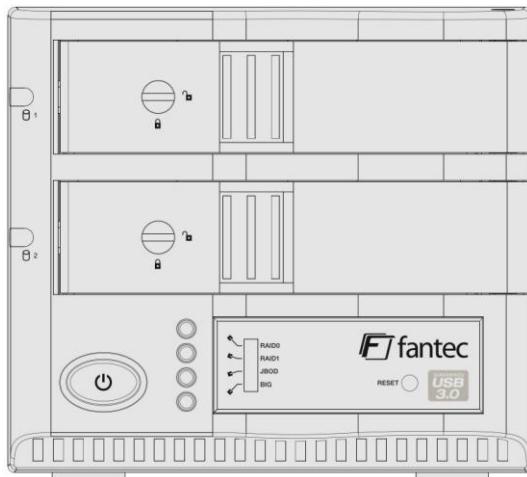
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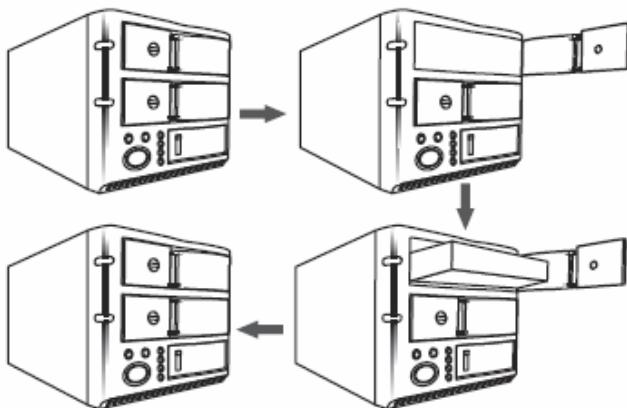
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2. Operation

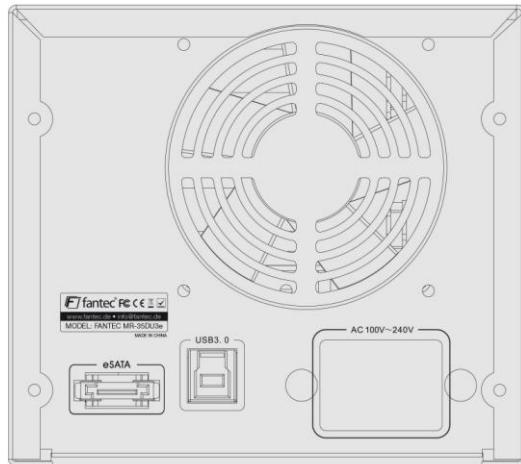


The Hard Disk Installation: Sway from side to side the lock , and pull the doorknob to insert 1 or 2 hard disk. Close the doorknob and the installation will be completed (The step will be represented in terms of following graphs)



Note: Sway from side to side the lock at the instructed point  which you could open the doorknob to install/unload the hard disk. In contrast, when you sway from side to side the lock at the instructed point  then you may not open it.

Connect to the computer host through USB, and turn on the power



Turn the switch to RAID0 and hold the reset switch for 3 sec, LED will keep bright and the host will be entering the RAID0 active status.

Turn the switch to RAID1 and hold the reset switch for 3 sec, RAID1 LED keep bright, and the host will be entering the RAID1 active status.

Turn the switch to JBOD and hold the reset switch for 3 sec, JBOD LED keep bright, and the host will be entering the JBOD active status.

Turn the switch to BIG and hold the reset switch for 3 sec, BIG LED will keep bright, the host will be entering the BIG active status.

Hard disk LED "■ 1" / "■ 2" sends blue light and has long-lasting bright light, which indicates the hard disk connection is correct.

Hard disk LED "■ 1" / "■ 2" sends purple light and does not stop flashing, which indicates the hard disk performing a Data transmission.

Hard disk LED "■ 1" / "■ 2" sends a constant purple light, which indicates a rebuild is going on.

Hard disk LED "■ 1" / "■ 2" turns off, which indicates the hard disk is disconnected.

LED condition:

Switch on power and insert two HD in terms of different working pattern

PATTERN	HDD carries on the self-checking	Data transmission
RAID0	HDD1 and HDD2 LED flashing in turn with purple lights. Self- checking completes when LED shows blue light	During Data transmission: The HDD1 and the HDD2 LED flashing with purple light. The Data transmission completes when LED shows the blue light
RAID1	HDD1 and HDD2 LED flashing in turn with purple lights. Self- checking completes when LED shows blue light	During Data transmission: The HDD1 and the HDD2 LED flashing with purple light. The Data transmission completes when LED shows the blue light
JBOD	HDD1 and HDD2 LED flashing in turn with purple lights. Self- checking completes when LED shows blue light	During Data transmission: LED flashing with purple light while operating different HDD. The Data transmission completes when LED shows the blue light
BIG	HDD1 and HDD2 LED flashing in turn with purple lights. Self- checking completes when LED shows blue light	During Data transmission: The HDD1 and the HDD2 LED flashing with purple light. The Data transmission completes when LED shows the blue light

After power on and insertion of one or two HD the following LED states appear after a HD failure.

(In this example HDD1 is normal and HDD2 is damaged, otherwise vice versa)

PATTERN	HDD carries on the self-checking	Data transmission
RAID0	HDD1 and the HDD2 LED flashing in turn with purple lights. Self checking completes when the HDD1 LED shows blue light, and the HDD2 LED goes out.	No transmission possible
RAID1	HDD1 and the HDD2 LED flashing in turn with purple lights. Self checking completes when the HDD1 LED shows blue light, and the HDD2 LED goes out.	Under the Data transmission condition: The HDD1 LED flashing with purple light, and the HDD2 LED flashing in turn with purple lights. The Data transmission completes when HDD1 LED shows blue light and the HDD2 LED goes out.
JBOD	HDD1 and the HDD2 LED flashing in turn with purple lights. Self checking completes when the HDD1 LED shows blue light, and the HDD2 LED goes out.	Under the Data transmission condition: The HDD1 LED flashing with purple light, and the HDD2 LED flashing in turn with purple lights. The Data transmission completes when HDD1 LED shows blue light and the HDD2 LED goes out.
BIG	HDD1 and the HDD2 LED flashing in turn with purple lights. Self checking completes when the HDD1 LED shows blue light, and the HDD2 LED goes out.	No transmission possible

Attention:

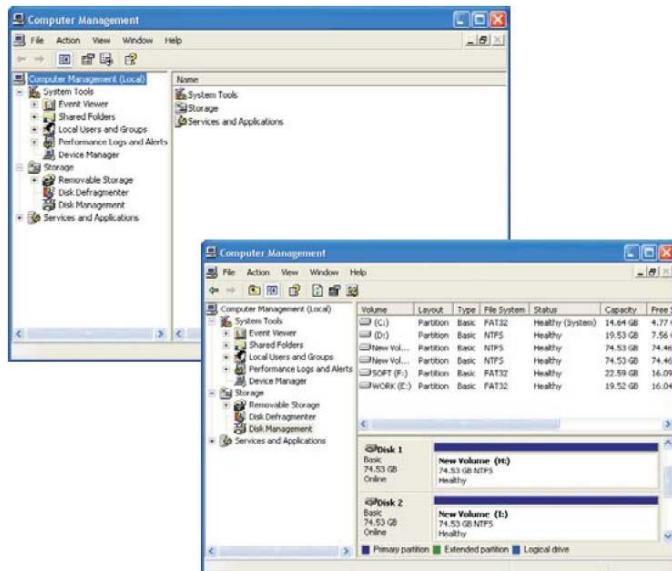
1. If you use two HDD simultaneously and discover that the LED1 or LED2 flashing with purple lights in turn for a long time. Please check and see if the HDD has installed correctly.
2. If you simultaneously use two HDD, and the HDD damaged under RAID0, JBOD, and BIG pattern, the data on the HDD will lose. Under the RAID1 pattern, you may consider to take out the damaged HDD and replace formatted HDD instead.

2.1 USB and eSATA Interface

2.1.1 JBOD Modus

Insert the two disks in the HDD1 and HDD2 rack and connect the device with the USB or eSATA & Power cable.

Turn on the power, switch the Mode to JBOD and press the Reset button for a few seconds, the computer will automatically recognize the USB device and two new drives should appear. If no new drive shows up, you have to initialize and/or format the disks in the Disk Management (Attention, after formatting all data will be erased) Right-click on “My Computer” click “Manage”, the Computer Management should appear where you choose Disk Management. You should find two new disks flagged as “Unknown” and/or “Unallocated”.



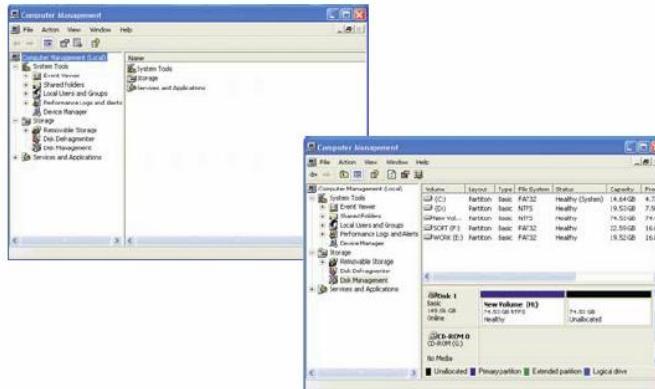
Right-click the “Unknown” disk and select “Initialize Disk”, now you can format the disk by right-clicking the “Unallocated” Disk and choose “New Partition” or “Add New Volume”.

2.1.2 BIG Modus

Insert the two disks in the HDD1 and HDD2 rack and connect the device with the USB or eSATA & Power cable.

Turn on the power, switch the Mode to BIG and press the Reset button for a few seconds, the computer will automatically recognize the USB device.

Right-click on “My Computer” click “Manage”, the Computer Management should appear where you choose Disk Management. You should find the new disks flagged as “Unknown” and “Unallocated”.



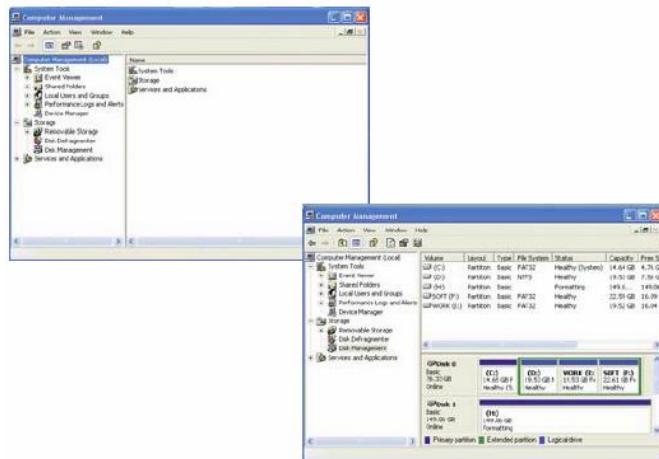
Right-click the “Unknown” disk and select “Initialize Disk”, now you can format the disk by right-clicking the “Unallocated” Disk and choose “New Partition” or “Add New Volume”.

2.1.3 RAID0

Insert the two disks in the HDD1 and HDD2 rack and connect the device with the USB or eSATA & Power cable.

Turn on the power, switch the Mode to RAID0 and press the Reset button for a few seconds, the computer will automatically recognize the USB device.

Right-click on “My Computer” click “Manage”, the Computer Management should appear where you choose Disk Management. You should find the new disks flagged as “Unknown” and “Unallocated”.



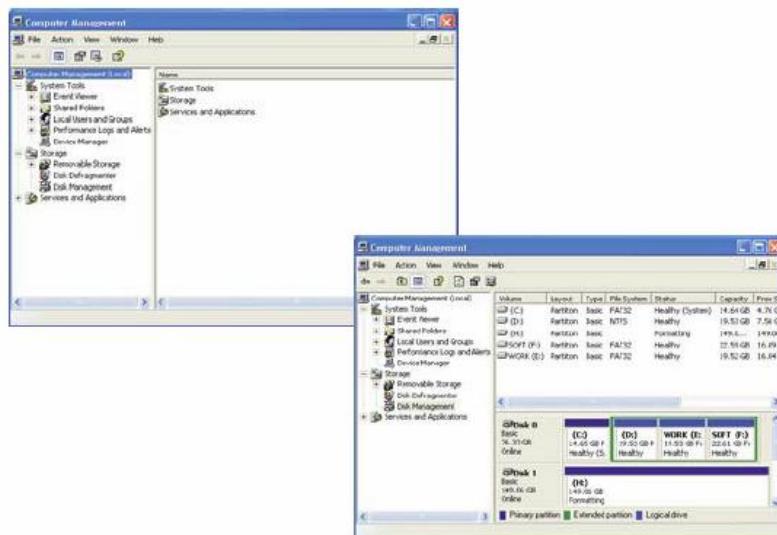
Right-click the “Unknown” disk and select “Initialize Disk”, now you can format the disk by right-clicking the “Unallocated” Disk and choose “New Partition” or “Add New Volume”.

2.1.4 RAID1

Insert the two disks in the HDD1 and HDD2 rack and connect the device with the USB or eSATA & Power cable.

Turn on the power, switch the Mode to RAID1 and press the Reset button for a few seconds, the computer will automatically recognize the USB device.

Right-click on “My Computer” click “Manage”, the Computer Management should appear where you choose Disk Management. You should find only one new disks flagged as “Unknown” and “Unallocated”.



Right-click the “Unknown” disk and select “Initialize Disk”, now you can format the disk by right-clicking the “Unallocated” Disk and choose “New Partition” or “Add New Volume”.

Note: When one of the hard disk is crashed, the new hard drive has to be replaced while the device is running!

Turn the unit off and remove the faulty hard disk. At the next step turn on the unit with the functional hard drive and wait for about 30 seconds.

Then insert the new hard drive into the bay from which you removed the faulty drive. The recovery of the data will start automatically and is indicated by a constant purple light on the front.

2.1.5 Partitioning Volumes

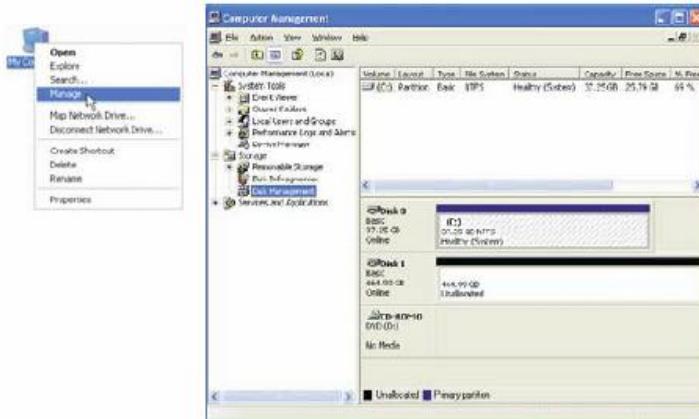
This section explains how to partition volumes after initializing them. You must partition volumes for the host computer's operating system before you can store data on the volumes. Refer to the operating system's documentation for further guidance.

Partitioning a hard drive

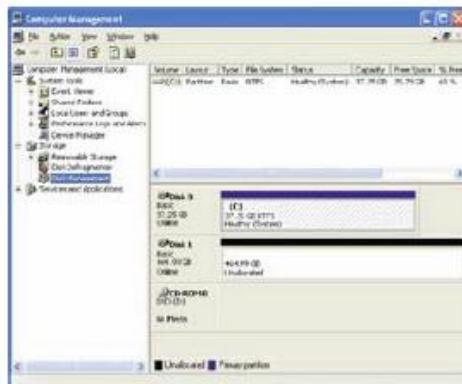
MS Windows

Important: Before reconfiguring a volume, back up your data and delete previously defined partitions. If no hard disk drives are connected to the device, the disks appear as **"Not Initialized"** with no capacity allocated to it. Do not initialize or modify that device.

1. Right-click the **My Computer** icon on your desktop and select **Manage** from the pop-up window.

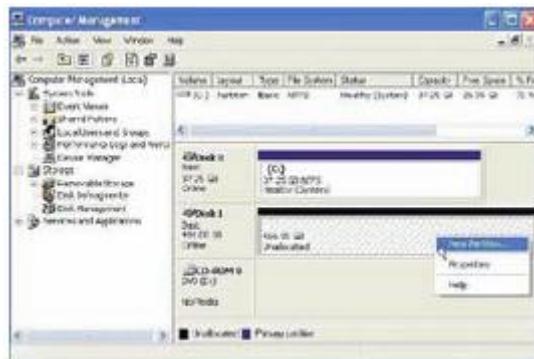


2. Select **Disk Management** under **Storage** to open the Windows Disk Manager.

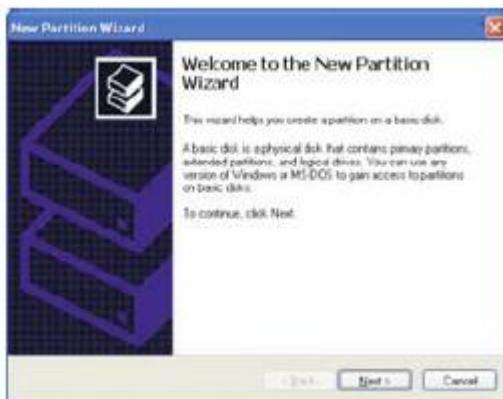


Every disk should appear with the word “**Basic**”, a size value that shows the available storage capacity, and a status of “**Online**”. Instead of Basic, a disk could appear **Unknown**, **Dynamic**, or **Not Initialized**. A window opens with the selected disk (all Unknown disks may appear in this window). Make sure the box next to each disk is checked and click **OK**. The disk should now be marked as a **Basic** disk. If a disk appears as “**Dynamic**”, right-click the disk icon, and select **Revert to Basic Disk**. Within a few seconds, the disk should be marked as a **Basic disk**. If a disk is marked “**Not Initialized**”, right-click the disk icon and select **Initialize Disk**. An additional dialog box appears allowing you to select which disks to initialize. Uncheck the **Disk** item and click **OK**. Within a few seconds, the selected disk(s) should be marked as a **Basic** disk.

3. Right-click the configured disk's unallocated space and select **New Partition**. If the **New Partition** option is not available, select the disk and initialize it first. To do this, right-click on the disk item and select „**Initialize Disk**”.



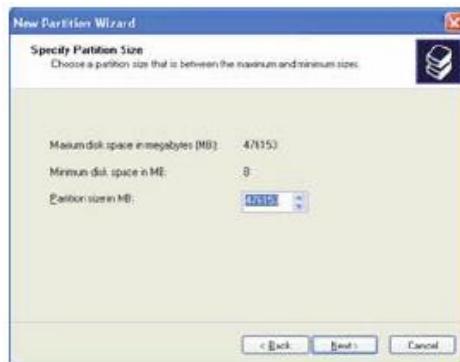
4. Click **Next** to start the Partition Wizard.



5. Select the Primary or Extended option and click **Next**.



6. Specify the partition size. By default, the partition occupies the entire volume. Click **Next**.



7. Assign a drive letter or mount path and click **Next**.



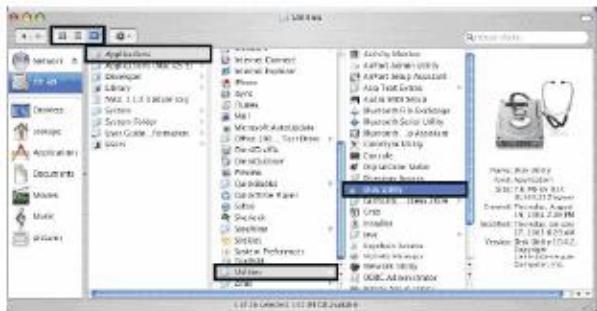
8. Name and format the partition and click **Next**.

9. Review the file system settings and click to create the logical partition.

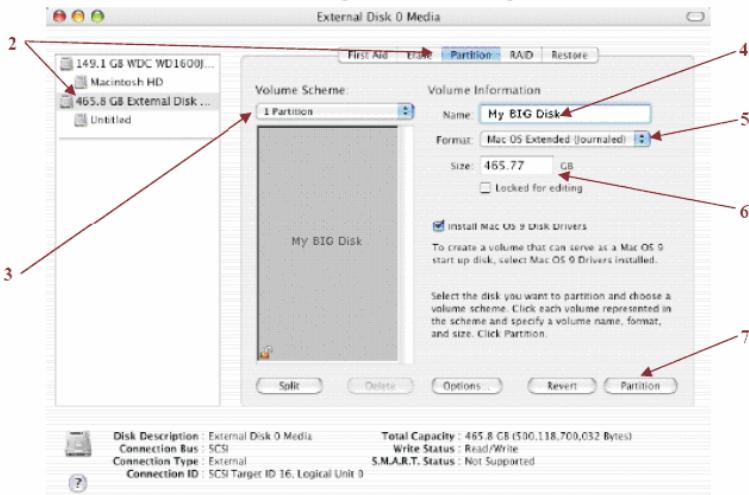
Mac OS X

Important: Before reconfiguring a volume, back up your data and drag the old drive to the trash to un-mount previously defined partition. If no hard drives are connected to the Storage Appliance, the Processor disk (8.0 GB Config Disk Media) will appear. Do not remove or modify that partition. After you configure and partition the new volumes, restore the backed-up data to the new configuration.

1. Launch **Disk Utility** from the **Application > Utilities** folder.



2. Select a configured disk and click the Partition tab. This procedure illustrates the **BIG** Storage Policy configuration, which concatenates the capacity of all hard drives connected to the device.



3. Select **1 Partition** from the **Volume Scheme** drop-down list.
4. Enter a name for the volume in the **Name** field (such as "My BIG disk").

5. Select **Mac OS Extended (journaled)** from the Format drop-down list.
6. Specify the size of the partition in the **Size** field.
7. Click the **Partition** button.
8. Click **Partition** to acknowledge the warning.



Disk Utility mounts the created partition and represents it with an icon on the desktop. The icon is labeled with the partition name.

3. Note

1. If this product is in use for the first time or the mode (BIG, JBOD, RAID0, RAID1) is changed, we must initialize and format the HDD before. (All information will be eliminated when format hard drives)
2. When you need to change different mode (BIG, JBOD, RAID0, RAID1) you must press the RESET button, so that the enclosure can distinguish the exact mode.
3. If you require a faster data transfer, RAID0 MODE will be suggested to use.
4. If you require a higher data security, RAID1 MODE will be suggested to use.
5. If you require a bigger hard disk capacity, BIG MODE will be suggested to use
6. Connecting USB & eSATA simultaneously is impossible. eSATA connection will be prioritized.
7. eSATA hostcontroller needs to support the port multiplier function in order to work correctly with the JBOD mode.
8. If your eSATA host doesn't support hot swap, please connect and power on the case before you turning on the PC.

4. Features

4.1 USB 3.0 (5.0 Gbps) and eSATA (3.0 Gbps)

The FANTEC MR-35DU3e provides the following Serial Advanced Technology Attachment (SATA) features:

Automatic negotiation between SATA I (1.5Gbps) and SATA II (3.0 Gbps)

Serial ATA 2.5 specification compliance (Gen2m)

Serial ATA Port Multiplier 1.1 specification compliance

For detailed information about SATA technology, refer to the following specifications online:

Serial ATA: High Speed Serialized AT Attachment, Revision 1.0a

Serial ATA II: Extensions to Serial ATA 1.0a, Revision 1.1

Serial ATA II: Port Multiplier, Revision 1.1

The Serial ATA web site is <http://www.serialata.org/>.

USB Features

The FANTEC MR-35DU3e provides the following Universal Serial Bus(USB) features:

USB 1.0 and USB 2.0 specification compliance

For detailed information about USB technology, refer to the following specifications online:

Universal Serial Bus Specification, Revision 1.1

Universal Serial Bus Specification, Revision 2.0

The USB Organization web site is <http://www.usb.org/>

4.2 Serial ATA HDD

Populated with two Serial ATA (SATA) hard disk drives (HDDs), each unit can manage as much as 4,000 gigabytes (i.e., 4 terabytes) of data, depending on the capacity of the hard disk drives that are installed. By combining multiple units in a daisy-chained hierarchy structure, you can increase the total storage capacity of your system.

4.3. 4 Working Modes (BIG,JBOD,RAID0,RAID1)

You can configure the FANTEC MR-35DU3e to use any of the following Storage Policies to map the appliance's physical hard drives to virtual drives that are visible to the host computer. The virtual drives are called volumes in the GUI. The host operating system treats each volume as if it were a single physical drive.

This virtualization allows you to overcome restrictions that are imposed by physical hard drives, such as speed, storage capacity or data storage reliability

BIG

The BIG storage policy concatenates a series of physical hard drives as a single large volume; resulting in a seamless expansion of virtual volumes beyond the physical limitations of singularly connected hard drives. BIG storage policy delivers maximum storage space without a single large capacity and costly hard drive.

Hard drive A and B are concatenated into a single virtual volume in the Figure below with a storage capacity that is equal to the sum of each of the physical hard drives A and B.

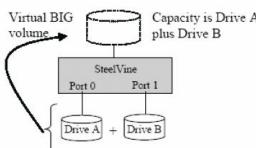


Figure 2 - BIG storage policy sample configuration

It is also possible to create a BIG volume using only a single hard disk drive connected to Port 0, and then increase the storage capacity of the volume later by adding another hard disk drive to Port 1 and pressing the Mode Change pushbutton. The new disk blocks of Port 1 will be concatenated to the end of the disk blocks of Port 0, and any data that is stored on the existing BIG volume will be preserved. However, it is not possible to expand an existing BIG volume by adding another hard disk drive to Port 0 and still preserve any existing data on that volume.

JBOD

The JBOD (Just a Bunch of Disks) storage policy enables each hard drive to be seen separately as one drive. JBOD storage policy is for a standalone (non-cascaded) Storage Processor or the top-level node of a cascaded configuration, but not for subordinate nodes. In a JBOD configuration, each physical drive is directly exposed.

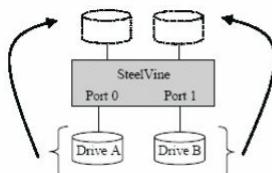


Figure 3 - JBOD storage policy sample configuration

RAID0

The RAID0 storage policy distributes access across all hard disks, also called striping. RAID0 presents the best data speed but no data redundancy. RAID0 storage policy accelerates hard disk operating speed by using many disks in parallel. Hard drive data segments are written to different disks simultaneously which increases performance while sacrificing data redundancy. To implement the RAID0 storage policy, the device creates a single virtual volume that is striped across both hard drives, with a storage capacity that is equal to the sum of both hard disk drives.

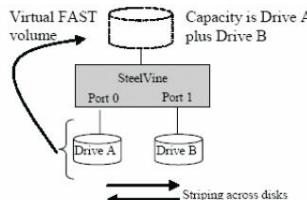


Figure 4 - FAST storage policy sample configuration

RAID1

The RAID1 storage policy stores all data in duplicate on separate drives to protect against data loss due to drive failure. One drive mirrors the other at all times. Every write operation goes to both drives. RAID1 provides the highest level of data protection for critical data that you cannot afford to lose if a hard drive fails, but halves the amount of storage capacity because all data must be stored twice. The resulting storage capacity of the virtual RAID1 volume will be equivalent to the size of one hard drive (if both drives are the same) or the smaller of the two drives (if they are different). If one drive fails, the RAID1 volume is still usable, but it is in a vulnerable state because its mirrored hard drive is inaccessible. When the offline drive comes back online, the appliance begins a rebuild process immediately to restore data redundancy. Although the volume remains available during the rebuild process, the volume is susceptible to data loss through damage to the remaining drive until redundancy is restored at the end of the rebuild and verification process. Host access takes precedence over the rebuild process. If you continue to use the SAFE volume during the rebuild, the rebuild process will take a longer time to complete, and the host data transfer performance will also be affected.

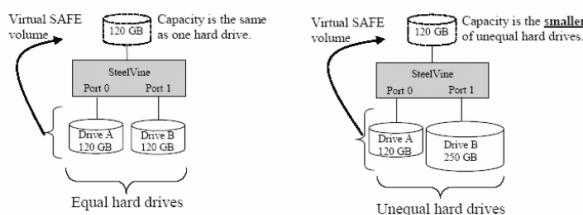


Figure 5 - SAFE storage policy sample configuration

4.4 Supported Systems:

Windows 2000/XP/VISTA/7 and MAC OS 9.0 and higher

4.4.1 System Expansion for Windows Overview

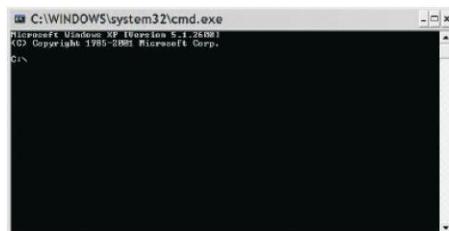
This appendix describes the procedures needed with Microsoft Windows for expanding file systems that have been created on volumes that have increased in size, while preserving all of your existing data. After you have added more hard disk drives to increase the storage capacity of a BIG volume, you must use the supplemental procedure described below to allow the expanded capacity to be recognized by the Windows file system. A command-line utility named "Diskpart.exe" ("Disk Partition") enables you to manage hard disk partitions and volumes. This utility is included as part of Windows XP Professional Edition, Windows 2003 Server and Windows Vista. For Windows 2000 or Windows XP Home Edition, you must download the "disk part" utility from Microsoft's website.

Additional third-party products (such as Norton Partition Magic) are available to perform similar volume management activities, but those products are very sophisticated and are not included in this manual.

Procedure

Before you can use DiskPart.exe commands on a hard drive disk partition/volume, you must first list and then select the partition/volume to extend.

1. Open a command prompt window by clicking Start --Run, then entering "cmd"



2. At the command prompt, type "diskpart".

```
C:\>diskpart
Microsoft DiskPart version 5.1.3565
Copyright (C) 1999-2003 Microsoft Corporation.
On computer: CYPRESSGC
DISKPART> -
```

3. Type "list volume" to display the existing volumes on the computer.

Volume #	Letter	Label	File System	Type	Size	Status	Info
Volume 0	D			CD-ROM	0 B		
Volume 1	C			Partition	37 GB	Healthy	
Volume 2	E	My BIG Disk	NTFS	Partition	153 GB	Healthy	System

4. Type “select volume <volume_number>” where “<volume_number>” is the number of the volume that you want to extend. In this case that will be “2”.

```
DISKPART> select volume 2
Volume 2 is the selected volume.
```

5. Type “extend”

```
DISKPART> extend
DiskPart successfully extended the volume.
```

6. Type “exit” to quit Diskpart.exe

```
DISKPART> exit
Leaving DiskPart...
```

The volume size will be updated to reflect the expanded physical storage capacity while maintaining all of the existing data that is stored on the volume.

The result of extending the hard disk partition/volume is illustrated below.

Before extend:



After extend:



Note: Before the hard drive partition/volume has been extended the “152.67GB “Unallocated” was not accessible for data usage. After using the disk part utility to extend the hard drive partition/volume capacity, the Windows host side matches the virtual hard drive partition/volume.

5. Package content

FANTEC MR-35DU3e

- User manual
- AC Cable
- USB Cable
- eSATA Cable